



Ames Laboratory Technical and Administrative Services Facility

HISTORY/CONTRACT:

Ames Laboratory was established in 1947 following work to produce purified uranium for the Manhattan Project. Ames Laboratory is operated by Iowa State University, Ames, Iowa, for the U.S. Department of Energy's Office of Science.

BACKGROUND:

- Estimated FY06 budget of \$33 million.
- Over 440 full- and part-time employees, including 260 scientists and engineers. Over 275 non-paid associates in departments throughout Iowa State University. Students make up more than 20 percent of work force.
- Annual payroll of approximately \$16 million.
- Supplies roughly 11 percent of sponsored research funding received by ISU.

MISSION:

- Conduct basic and applied research in the chemical, materials, mathematical, engineering and environmental sciences, and physics in support of the Department of Energy's mission and vision.
- Transfer technologies to improve industrial competitiveness.
- Educate the next generation of scientists and engineers.

CORE COMPETENCIES:

- Advanced materials synthesis, characterization and processing
- Chemical and analytical sciences
- Computational and theoretical sciences

SCIENTIFIC ACHIEVEMENTS:

- Material for magnetic refrigeration that improves refrigerator efficiency by an estimated 40 percent in large-scale refrigeration units and air conditioners.
- Lead-free solder that is stronger, easier to use, stands up better in high-heat conditions and is environmentally safe. Over 50 licensing agreements worldwide have been signed on lead-free solder.
- Capillary electrophoresis unit that can analyze multiple chemical samples simultaneously, which has applications in the pharmaceutical, genetics, medical and forensics fields. Technology has been the basis for a spin-off business.
- Photonic band-gap crystals that led to the development of the rapidly expanding field of photonic crystals, which are expected to have revolutionary applications in optical communications.

USER FACILITY:

- **Materials Preparation Center (MPC)** provides high-purity materials and unique characterization services to scientists at university, industry and government facilities.
- **Company Assistance** is a specialized service of the MPC that provides technical assistance to Iowa companies with materials problems.

AWARDS:

- 16 R&D 100 Awards since 1984. Latest in 2006 for development of a novel software engineering tool that greatly eases the problem-solving and decision-making process for engineers.

SCIENCE EDUCATION:

- High School Science Bowl (17th year) and Middle School Science Bowl (4th year). Winner of the 1998 Regional High School Science Bowl also won the DOE National Science Bowl. In 2006, Regional winner Regina Education Center won \$1,000 at the DOE National Science Bowl for making it into the "Top 16" round of competition.
- Science Undergraduate Laboratory Internship (SULI) program (3rd year).
- Department of Energy Academies Creating Teacher Scientists (DOE ACTS)